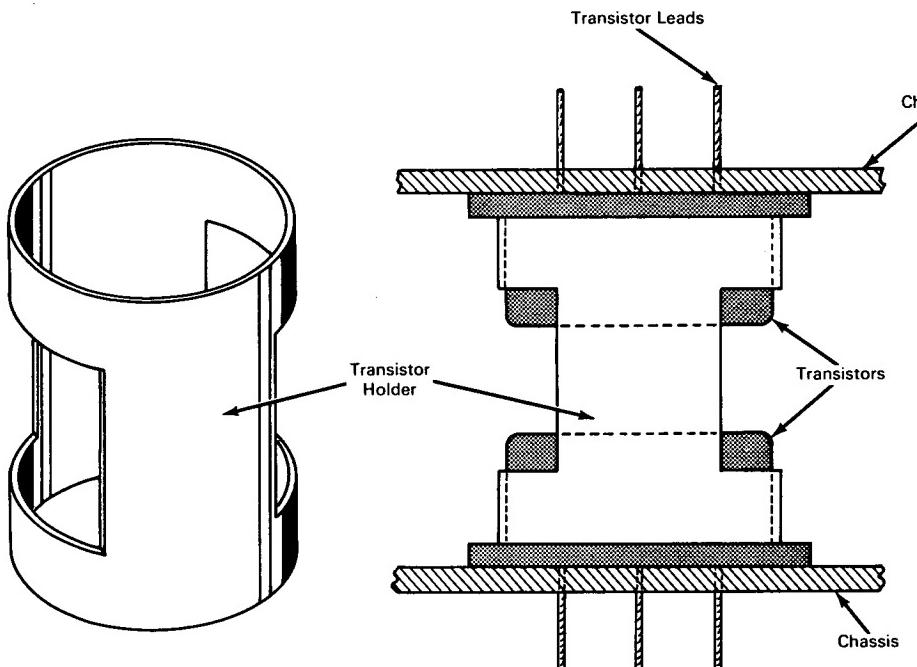


# NASA TECH BRIEF



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## Insulator-Holder Protects Transistors in Dense Electronic Assemblies



SIDE VIEW OF HOLDER WITH TWO TRANSISTORS

**The problem:** To devise an insulated holder for mounting metal-case transistors in a chassis containing densely packed electronic components. The holder must insulate against electrical shorts between adjacent transistors, absorb some of the pressure exerted during spot welding operations, and prevent the formation of thermally insulating air cavities around the transistors when the electronic assembly is encapsulated with potting resin.

**The solution:** A molded insulating spacer which contains one or more cavities conforming to the shape of the transistor case.

**How it's done:** The cylindrical holder shown in the illustration accommodates two transistors back-to-back in close-fitting cavities on either end of the holder. The transistors are mechanically supported on their bases and electrically isolated from each other by the holder. An opening extending laterally

(continued overleaf)

through the holder allows potting resin to fill the gap between the transistors. The holders require little more space than the transistors themselves.

**Notes:**

1. This type of holder may be used for insulation and support of other circuit components.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
P.O. Box 1537  
Houston, Texas, 77001  
Reference: B65-10389

**Patent status:** NASA encourages the immediate commercial use of this invention. It is owned by NASA and inquiries about obtaining royalty-free rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

Source: Westinghouse Electric Corporation  
under contract to  
Manned Spacecraft  
Center (MSC-214)